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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/519,639

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Jan Matthijs Jetten

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EXAMINER

CHAUDHRY, SAIED T

ART UNIT

PAPER NUMBER

1711

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/519,639

**Applicant(s)**

JETTEN ET AL.

**Examiner**

Saeed T. Chaudhry

**Art Unit**

1711

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 July 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13, 16-18 and 20-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13, 16-18, 20-22, 24, 26 and 27 is/are rejected.
- 7) ☒ Claim(s) 23 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-506)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Paper No(s)/Mail Date \_\_\_\_\_
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

Applicant's amendments and remarks filed July 12, 2010 have been acknowledged by the examiner and entered. Claims 1-12, 14-15 and 19 have been canceled and claims 13, 16-18, 20-27 are pending in this application for consideration.

Rejection under 35 U.S.C. § 103 as being unpatentable over Jennings in view of Fremont et al. and Schuchardt; and further in view of Doddema et al; and Jennings in view of Fremont has been withdrawn by the examiner in view of remarks filed July 12, 2010.

**Claim Rejections - 35 USC § 112**

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13, 16-18, 20-22, 24 and 26-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 13 and 20 recite a limitation of "200 to 5000" is not supported by the originally filed disclosure. This limitation is not found in the specification. The specification discloses 1 to 5000 ppm of all chemicals and not for only peroxide or hypochlorous acid. The specification only uses peroxide in the range of 200 to 2000 ppm.

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made

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to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 148 USPQ 459, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or unobviousness.

**Claims 13, 17, 18 and 20-27 are rejected under 35 U.S.C. § 103 as being unpatentable over Mol et al. in view of Jennings and Fremont et al.**

Mol et al. (6,274,186) disclose a method of cleaning residue from filtering membrane beverage system. The reference discloses that filters are involved, such as membrane filters used for filtering the products during the production of foodstuffs, such as milk (products), fruit juices, beer, soft drinks (such as lemonades), cider, wine, sherry, port, distilled drinks and the like, the problem often occurs that apparatus must be cleaned after a certain period. Conventional cleaning techniques, e.g. based on catalyzed oxidation, e.g. with a peroxide/metal (manganese) complex hypochlorite or hypobromite (see col. 1, lines 15-65). The reference fails to specify that membrane is a polymer membrane or a back flush at a rate of 0.5-100 liters.

In an analogous art Jennings (3,912,624) discloses that it is considered conventional to periodically back-flush the units and clean the membrane surfaces with a cleaning flow stream. It is also known and generally conventional in the membrane separation field to periodically make use of certain additives or cleaning agents. For example, in connection with the handling of certain food materials and in the processing of cheese to obtain protein and lactose, there can be the growth of fungus and bacteria on membranes and in headers or other parts of the equipment. In order to assure an uncontaminated clean system, there can be the use of a sanitizing solution added to a flushing fluid during the periodic cleaning procedure. Such solution may, for

example, comprise a mild hypochlorous acid solution or an iodine-phosphoric acid complex, or various of the cleaning agents used in the dairy industry to remove molds and various bacteriological growths (see col. 1, lines 12-40). The reference fails to specifically remove protein or polyphenol from the membrane and membrane is made from polymer.

Fremont et al. (4,740,308) disclose a process of cleaning fouled separation membranes such as reverse osmosis (made from polymer) contacting with an inorganic peroxide and rinsing with alkali metal hydroxide. Wherein the pH is between 8.5 to 11 (see abstract, col. 1, line 4, col. 3, line 40-68 through col. 4, line 32 and claims). The reference fails to clean residues from filtering beverages.

It would have been obvious at the time applicant invented the claimed process to include a back flush the membrane as disclosed by Jennings in the process of Mol et al. since back flushing the membrane is known in the art for removal of contaminants from the surface of membrane and increase the production of the membrane. Further, Jennings and Mol et al. concerned with the same field of endeavor such as beverage filters. Therefore, one of ordinary skill in the art would have motivated to combine the teaching of both the references. Polymer membrane as disclosed by Fermont et al. are known to be used in the beverage for filtering and beverages contains proteins and polyphenols attached to the filters. Therefore, proteins and polyphenols are inherently removed in the processes of Jennings and Mole et al. as claimed herein. Fermont et al. also, disclose to clean polymer membrane with peroxide at pH of between 8.5 to 11. Therefore, one of ordinary skill in the art would have manipulate the pH of the cleaning solution with routine experimentation for efficient results. Substituting peracid with hydrogen peroxide is convention in the cleaning art. Back flush with 0.5-100 liters of the

solution per h per m of filter surface would have been obvious to manipulate the flow rate for better and efficient cleaning, since no unexpected results are shown. Furthermore, on of ordinary skill in the art would have manipulate the time for back flush the cleaning process with routine experimentation. It would have been obvious at the time applicant invented the claimed process to use Jennings process for removing residue such as protein or polyphenol since Jennings discloses that it is conventional to remove fats and oil from the surface of membrane with hypochlorous acid. Further, Jennings disclosed fats which includes protein.

It would have been obvious to use alkaline solution as disclosed by Fremont et al. for rinsing membrane since one of ordinary skill in the art would use alkaline solution before or after using hypochlorous acid for neutralizing the surface of membrane. Furthermore, Mol et al. disclose that these chemicals are conventional for cleaning membrane but does not suggest any concentration. One of ordinary skill in the art would have manipulate the concentration with routine experimentation for better and efficient results.

**Claim 16 is rejected under 35 U.S.C. § 103 as being unpatentable over Mol et al. in view of Jennings and Fremont et al., as applied to claim 13 above, and further in view of Doddema et al.**

Mol et al., Jennings and Fremont et al. were discussed supra. However, the references fails to disclose that the transition metal is complexed with polyamine.

Doddema et al (5,667,690) disclose method of removing phenols from waste water by treating with a complex of transition metal and a polyamine in the presence of peroxide, wherein peroxide is peracid (see abstract, col. 1, lines 32-46 and claims).

It would have been obvious at the time applicant invented the claimed process to incorporate polyamine in the process of Mol et al., since Doddema et al. disclose that phenols

compounds are effectively removed by treating with a complex of transition metal and polyamine in the presence of peroxide. One would use the teaching of Doddema et al into the process of Mol et al. since both the references are in the same field of endeavor.

#### **Allowable Subject Matter**

Claims 23 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### **Reasons For Allowable Subject Matter**

The following is an Examiner's statement of reasons for the indication of allowable subject matter:

None of the prior art discloses or suggests process of cleaning a polymer membrane filter with peroxide in a range of 200 to 2000 ppm with transition metal.

#### **Response to Applicant's Arguments**

Applicant argued that The Mol process is therefore clearly not a TEMPO-free process as is the process of the present invention and Mol actually teaches away from such a TEMPO-free process.

This argument is not persuasive because Mol et al. disclose that it is conventional to use peroxide with metal manganese (see col. 1, line 53-65). Therefore, One would use these chemical for cleaning membrane. TEMPO is Mol et al. invention, which is not relied for the rejection.

Applicant argued that Jennings is concerned with reverse osmosis and ultra filtration, each of which is, as Dr. Jetten states, "unsuitable for the filtration of beer, since these techniques

would result in the loss of valuable components such as certain proteins and affect oxygen update."

This argument is unpersuasive because Jennings is only cited to disclose that back flushing membrane are well known in the art. Therefore, one of ordinary skill in the art would have use a back flush step for cleaning membrane for efficient results.

Declaration filed by Dr. Jan Matthijs Jetten has been acknowledged by the examiner but fails to over come the rejections.

Applicant's arguments filed July 12, 2010 have been fully considered but they are not persuasive.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

*Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saeed T. Chaudhry whose telephone number is (571) 272-1298. The examiner can normally be reached on Monday-Friday from 9:30 A.M. to 4:00 P.M.*

*If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Barr, can be reached on (571)-272-1414. The fax phone number for non-final is (571)-273-8300.*

*When filing a FAX in Gp 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are for entry into the file of the application. This will expedite processing of your papers.*

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*Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1700.*

**Saeed T. Chaudhry**

***Patent Examiner***

/Michael Barr/

Supervisory Patent Examiner, Art Unit 1711